Application Filed: 08-05-2003

Response to Office Action mailed 06-06-2007

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:** 

1. (currently amended) A method of filtering a red-eye phenomenon from an acquired

digital image comprising a multiplicity of pixels indicative of color, the pixels forming various

shapes within the image, the method comprising:

(a) analyzing meta-data information including image acquisition device-specific

information including aperture, f-stop, color transformation, CCD size or depth of field, or

combinations thereof; and

(b) determining, based at least in part on said meta-data analysis, whether one or more

regions within said digital image are suspected as including red eye artifact.

2. (original) The method of claim 1, further comprising analyzing pixel information

within one or more regions suspected as including red eye artifact based on said meta-data

analysis, and determining whether any of said one or more suspected regions continue to be

suspected as including red eye artifact based on said pixel analysis, said pixel analysis being

performed after said meta-data analysis.

3. (currently amended) The method of claim 1, further comprising analyzing pixel

information within said digital image, and determining whether said one or more regions are

suspected as including red eye artifact based on said pixel analysis, and wherein said pixel

analysis is being performed after before said meta-data analysis.

4. (original) The method of claim 1, further comprising analyzing pixel information

within said digital image, and determining whether one or more same or different regions are

suspected as including red eye artifact based on said pixel analysis, said pixel analysis being

performed independent of said meta-data analysis.

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5. (currently amended) The method of claim 1, wherein the meta-data further comprises

comprising anthropometrical data.

6. (currently amended) The method of claim 1, wherein said filtering is being executed

at least partially within a portable image acquisition device, having no photographic film.

7. (currently amended) The method of claim 1, wherein said filtering is being executed

at least in part as a post-processing operation on an external computation device.

8. (currently amended) The method of claim 7, wherein some or all of said meta-data

analysis is being performed on said image acquisition device.

9. (currently amended) The method of claim 8, further comprising marking certain

regions determined to be suspected as including red eye artifact based on said analyzing, wherein

said marking of certain regions facilitates analysis for correction at during said post-processing

operation step on said external computation device, wherein said marking being performed on

said image acquisition device.

10. (currently amended) The method of claim 7, wherein some of said meta-data

analysis or said suspected region determining or a combination thereof is being performed on

said image acquisition device, and some of said meta-data analysis or said suspected region

determining or a combination thereof is being performed during at said post-processing operation

step on said external computation device.

11. (currently amended) The method of claim 1, wherein a lens is being used to capture

the image, and wherein said meta-data information comprises comprising focal length of the lens

at the time of acquisition.

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12. (currently amended) The method of claim 11, wherein said meta-data information

further comprises comprising focusing distance of the lens at time of acquisition.

13. (currently amended) The method of claim 11, wherein said meta-data information

comprises comprising effective sensor size.

14. (currently amended) The method of claim 13, wherein said actual red eye artifact is

being determined based on calculated expected size of said red eye artifact based on said meta-

data information including said acquisition device-specific information.

15. (currently amended) The method of claim 14, wherein said calculated expected size

of said red eye artifact is being defined as a range with a density probability function, and

wherein the range is being calculated based on depth of field.

16. (currently amended) The method of claim 13, wherein said calculated expected size

of said red eye artifact is being defined as a range with a density probability function, and

wherein the range is being estimated.

17. (currently amended) The method of claim 13, wherein said calculated expected size

of said red eye artifact is being defined as a range with a density probability function, and

wherein said meta-data comprises comprising anthropometrical data, and wherein said range is

being determined by a statistical distribution of said anthropometrical data.

18. (currently amended) The method of claim 1, wherein said determining operation

<u>includes</u> including a probability determination process based upon a plurality of criteria.

19. (original) The method of claim 1, further comprising:

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(i) adjusting a pixel color within any of said regions wherein red eye artifact is determined; and

(ii) outputting image data to a printer.

20. (currently amended) The method of claim 19, wherein the pixel color is being adjusted within the printer.

21. (currently amended) The method of claim 1, <u>wherein</u> said meta-data information <u>comprises</u> <u>comprising</u> information describing conditions under which the image was acquired.

22. (currently amended) The method of claim 21, wherein said meta-data information comprises comprising an indication of whether a flash was used when the image was acquired.

23. (currently amended) The method of claim 21, <u>wherein</u> said meta-data information <u>comprises</u> emprising aperture at the time of the acquisition.

24. (original) The method of claim 21, further comprising analyzing pixel information within one or more regions suspected as including red eye artifact based on said meta-data analysis, and determining whether any of said one or more suspected regions continue to be suspected as including red eye artifact based on said pixel analysis, said pixel analysis being performed after said meta-data analysis.

25. (currently amended) The method of claim 21, wherein the meta-data further comprises comprising anthropometrical data.

26. (currently amended) The method of claim 21, wherein a lens is being used to capture the image, and wherein said meta-data information comprises comprising focal length of the lens at the time of acquisition.

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27. (currently amended) The method of claim 26, wherein said meta-data information further comprises comprising focusing distance of the lens at time of acquisition.

28. (currently amended) The method of claim 26, wherein said meta-data information comprises comprising effective sensor size.

29. (original) The method of claim 21, further comprising:

(i) adjusting a pixel color within any of said regions wherein red eye artifact is determined; and

(ii) outputting image data to a printer.

30. (currently amended) The method of claim 29, wherein the image is being adjusted within the printer.

31. (currently amended) A method of filtering a red-eye phenomenon from an acquired digital image comprising a multiplicity of pixels indicative of color, the pixels forming various shapes within the image, the method comprising:

(a) analyzing meta-data information <u>including image acquisition device-specific</u>
<u>information</u> including a spectral response curve of a sensor of an acquisition device with which the image was acquired; and

(b) determining, based at least in part on said meta-data analysis, whether one or more regions within said digital image are suspected as including red eye artifact.

32. (currently amended) The method of claim 31, wherein said meta-data information comprises comprising a color transformation from raw sensor pixel values to saved image pixel values.

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33. (currently amended) The method of claim 31, wherein said determining operation

includes including a probability determination process based upon a plurality of criteria.

34. (currently amended) The method of claim 31, wherein said meta-data information

comprises comprising acquisition device-specific information.

35. (currently amended) The method of claim 34, wherein said meta-data information

<u>comprises</u> eomprising one or more conditions under which the image was acquired.

36. (currently amended) The method of claim 35 31, wherein said meta-data comprises

comprising a color transformation from raw sensor pixel values to saved image pixel values.

37. (currently amended) The method of claim 36, wherein color values of said pixels

indicative of red eye color are being calculated based on a spectral response of said red eye

phenomenon.

38. (currently amended) The method of claim 37, wherein the spectral response of said

red eye phenomenon is being according to illumination by a spectral distribution of a camera

flash unit.

39. (currently amended) The method of claim 38, wherein the spectral distribution of

said camera flash unit is being as recorded by said sensor of said acquisition device with which

said image was acquired.

40. (currently amended) The method of claim 39, wherein said determining operation

<u>includes</u> includes including comparing pixels indicative of red eye color and a multiplicity of pixels

forming various shapes.

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41. (currently amended) The method of claim 40, wherein said pixels indicative of red eye color are being calculated based on an inverse transformation of said color transformation

from raw sensor pixel values to saved image pixel values.

42-73 (cancelled).

74. (original) A method of filtering a red-eye phenomenon from an acquired digital

image comprising a multiplicity of pixels indicative of color, the pixels forming various shapes

within the image, the method comprising:

(a) analyzing meta-data information including information describing conditions under

which the image was acquired; and

(b) determining, based at least in part on said meta-data analysis, whether one or more

regions within said digital image are suspected as including red eye artifact.

75. (original) The method of claim 74, further comprising analyzing pixel information

within one or more regions suspected as including red eye artifact based on said meta-data

analysis, and determining whether any of said one or more suspected regions continue to be

suspected as including red eye artifact based on said pixel analysis, said pixel analysis being

performed after said meta-data analysis.

76. (currently amended) The method of claim 74, further comprising analyzing pixel

information within said digital image, and determining whether said one or more regions are

suspected as including red eye artifact based on said pixel analysis, and wherein said pixel

analysis is being performed after before said meta-data analysis.

77. (original) The method of claim 74, further comprising obtaining anthropometrical

information of human faces and said determining, based at least in part on said meta-data

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analysis, whether said regions are actual red eye artifact, being based further on said anthropometrical information.

78. (currently amended) The method of claim 74, wherein said filtering method is being executed within a portable image acquisition device, having no photographic film.

79. (currently amended) The method of claim 74, wherein said filtering filtered method is being executed as a post-processing step on an external computation device.

80. (currently amended) The method of claim 74, wherein said meta-data information describes describing the conditions under which the image was acquired and comprises emprising an indication of whether a flash was used when the image was acquired.

81. (currently amended) The method of claim 74, wherein said determining whether said regions are actual red eye artifact is being performed as a probability determination process based upon a plurality of criteria.

82. (original) The method of claim 74, further comprising:

(i) adjusting a pixel color within any of said regions wherein red eye artifact is determined; and

(ii) outputting image data to a printer.

83. (currently amended) The method of claim 82, wherein the pixel color is being adjusted within the printer.

84-108 (cancelled).